

THERMODYNAMIC PRESSURE/TEMPERATURE TRANSDUCER HEALTH CHECK

Abstract

5 A device and procedure for checking the health of a pressure transducer in situ is provided. The procedure includes measuring a fixed change in pressure above ambient pressure and a fixed change in pressure below ambient pressure. This is done by first sealing an enclosed volume around the transducer with a valve. A piston inside the sealed volume is then driven forward, compressing the enclosed gas, thereby increasing
10 the pressure. A fixed pressure below ambient pressure is obtained by opening the valve, driving the piston forward, sealing the valve, and then retracting the piston. The output of the pressure transducer is recorded for both the overpressuring and the underpressuring. By comparing this data with data taken during a preoperative calibration, the health of the transducer is determined from the linearity, the hysteresis,
15 and the repeatability of its output. The further addition of a thermometer allows constant offset error in the transducer output to be determined.

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